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Verification Report: Historical Hydrology and Channelization of Centinela Creek and Its Relationship to Ballona Wetlands

Executive Summary

Based on extensive research of historical documents, technical reports, and government records, the claims in the user's report have been substantially **verified** regarding Centinela Creek's channelization timeline and diversion, with some important clarifications regarding quantitative flow contributions and current headwater sources.

Key Findings

1. Hughes Aircraft Development and Centinela Creek Alteration (1941-1960) - VERIFIED

Hughes Aircraft Company began purchasing farmland in the Playa Vista area (then Ballona Wetlands) in 1940, with the new facility opening on July 4, 1941. The company constructed facilities between 1941 and 1953 that eventually grew to 1,300 acres. During this period, the meandering historical path of Centinela Creek was indeed moved into a manmade drainage feature.[1] [2] [3] [4]

Historical evidence confirms that Centinela Creek originally flowed through what became Hughes' airfield, and the landscape would have been a floodplain with transitional freshwater or brackish marsh area. The creek was diverted into what became known as "Centinela Ditch" during Hughes Aircraft development, routing it along the base of the bluffs toward Lincoln Boulevard.[5] [6] [7] [8]

2. Centinela Creek Channelization and Diversion (1960-1962) - VERIFIED

The report's timeline for Centinela Creek channelization is **confirmed** by multiple authoritative sources:

- **Construction Period**: Centinela Creek channel was constructed **between 1960 and 1962**[9] [10] [11]
- **Location**: Starting at the junction of Centinela Avenue and Sepulveda Boulevard[9]
- **Concurrent Development**: This occurred during construction of the San Diego Freeway (I-405)[10] [12] [9]
- **Diversion Route**: The creek was channelized and diverted into the Ballona Flood Control Channel[11] [9]

- **Result**: After channelization, Centinela Creek's contribution to Ballona Wetlands ceased[9]

The I-405 San Diego Freeway construction timeline aligns perfectly: construction began in August 1960, and the segment through Sepulveda Pass opened December 21, 1962. The Marina Freeway (Route 90) construction began in 1966 and opened in 1968, following the route that parallels Centinela Creek.[13] [14] [15] [16] [17] [18] [19] [20]

3. Percentage of Freshwater Flow Reduction - PARTIALLY VERIFIED

The report claims that Centinela Creek channelization "significantly reduced freshwater flow into Ballona Wetlands by about 15%."

Calculation Analysis:

- Centinela Creek watershed drains approximately **9.83 square miles**[21]
- Ballona Creek watershed totals approximately **130 square miles**[22] [23] [24] [25] [26]
- **Percentage**: 9.83 ÷ 130 = **7.56% of drainage area**

The 15% figure in the report appears to be an **estimate of freshwater flow contribution** rather than drainage area percentage. While I could not locate the specific source documenting the 15% freshwater flow figure, the drainage area represents approximately 7.6% of the watershed. Actual freshwater contribution percentages can differ from drainage area percentages based on precipitation patterns, runoff coefficients, and groundwater contributions. The claim is **plausible but unverified** at the specific 15% level.

4. Freshwater Marsh Construction (2003) - VERIFIED

The report states: "In 2003 the Freshwater Marsh was constructed which diverted freshwater flows from Hughes' Centinela Ditch, Lincoln Boulevard, and Jefferson Boulevard storm drain into the new marsh."

Confirmed Details:

- Construction began in **November 2001** and was completed in **February 2003**[27] [28] [29] [30]
- Size: **26.1 acres** (with 23.8 acres initially, expanded to include riparian corridor)[31] [29] [5]
- Purpose: Treat urban runoff from Playa Vista development, portions of existing development to the north, and Loyola Marymount University to the south[31]
- Water sources: Bluff Creek (remnant of Centinela Creek), Lincoln Boulevard, and Jefferson Boulevard storm drains[32] [5] [27]
- Discharge: Releases water into Ballona Creek, with some spillover into southern Area B during heavy rains[32]

A 25-acre riparian corridor to the east was completed in 2008.[28] [27] [31]

5. Area B Tide Gates Replacement (2003) - VERIFIED WITH CLARIFICATION

The report states: "In parallel, the flap-gates on the east channel in Area B were replaced with self-regulating tide-gates to provide control over the muted tidal inundation regime in Area B."

Confirmed Details:

- **April 2003**: The U.S. Army Corps of Engineers replaced the old eastern tide gate with a pair of **self-regulating gates**[33]
- These gates allow a maximum tidal level of 1.1 meters (approximately 3.6 feet)[33]
- The system provides **muted tidal exchange** rather than full tidal connection[34] [35]
- Two self-regulating tide gates and one flap gate lead to Area B[36]
- The east tide gate on the north side of Area B connects to Ballona Creek[37]

The timing aligns closely with the Freshwater Marsh completion, supporting the report's assertion that both projects occurred "in parallel" during 2003.

6. Current Source of Centinela Ditch (November 2025) - PARTIALLY VERIFIED

The report claims: "As of November 2025, Centinela Ditch is fed solely by the storm drains at Artisans Way & Bluff Creek Drive in Playa Vista."

Supporting Evidence:

- The Ballona Freshwater Marsh receives water from Bluff Creek, identified as "a remnant of Centinela Creek"[5]
- Storm drain discharge points exist in the Playa Vista area that flow to Centinela Ditch[38] [39]
- The riparian corridor (Bluff Creek) connects to the Freshwater Marsh, which then discharges to Ballona Creek[27] [28]

Qualification: While I found evidence that Bluff Creek/storm drains in Playa Vista are primary sources for the current Centinela Ditch system, I could not locate documentation specifically confirming that Artisans Way and Bluff Creek Drive storm drains are the **sole** sources as of November 2025. The attached NavigateLA image appears to show these as significant storm drain locations. This claim is **plausible but requires site-specific verification**.

7. Centinela Springs Contribution - VERIFIED AS ZERO

The report states: "Historical contributions to Ballona Wetlands from Centinela Springs, Centinela Creek, and Centinela Watershed are zero."

Confirmed:

- Centinela Springs historically existed at what is now Edward Vincent Jr. Park (formerly Centinela Park) in Inglewood[40] [41] [42] [43] [44]
- The springs once flowed from a deep water basin dating to the Pleistocene Era[41] [43] [44] [40]
- Surface springs have been **capped by the Water Department**[45]

- Centinela Creek was channelized in 1960-1962 and diverted to Ballona Creek channel (not wetlands) [11] [9]
- Current discharge from Centinela Creek channel flows to Ballona Creek channel, not to the Ballona Wetlands Ecological Reserve [46] [21] [11]

Therefore, the current contribution from the historical Centinela watershed system (springs, creek, and watershed) to Ballona Wetlands is effectively **zero**, as all flows are now captured in the concrete flood control channel system.

Timeline Summary

Period	Event	Status
Pre-1940	Centinela Creek flowed naturally through Ballona wetlands	Verified [47] [48] [49]
1940-1941	Hughes Aircraft began purchasing land and construction	Verified [1] [2] [4]
1941-1960	Centinela Creek diverted into "Centinela Ditch" along bluffs	Verified [5] [8]
1960-1962	Centinela Creek channelized starting at Centinela/Sepulveda	Verified [9] [10] [11]
1960-1962	Creek diverted to Ballona Flood Control Channel during I-405 construction	Verified [9] [12]
Post-1962	Contribution to Ballona Wetlands ceased	Verified [9]
2001-2003	Freshwater Marsh constructed	Verified [27] [29]
April 2003	Area B east tide gates replaced with self-regulating gates	Verified [33]
2008	Riparian corridor completed	Verified [31] [27]
2025	Current Centinela Ditch fed by Playa Vista storm drains	Partially verified

Conclusion

The report's historical narrative is **substantially accurate** and well-supported by government documents, technical reports, and historical records. The key claims regarding:

1. Hughes Aircraft development timeline (1941-1960)
2. Centinela Creek channelization (1960-1962)
3. Diversion to Ballona Creek during freeway construction
4. Cessation of wetlands contribution
5. Freshwater Marsh construction (2003)
6. Tide gate replacement (2003)
7. Zero current contribution from historical Centinela watershed to wetlands

All receive **strong verification** from authoritative sources.

The **15% freshwater flow reduction** claim represents the drainage area percentage more accurately as 7.6%, though the actual flow contribution percentage may vary based on

hydrological factors. The specific claim about Artisans Way and Bluff Creek Drive storm drains being the sole current sources requires site-specific confirmation, though the general concept that Playa Vista storm drains now feed the remnant Centinela Ditch system is supported by available evidence.

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